

Stephen David Miller

SVP Engineering

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Summary

Product and Engineering leader with strong interpersonal skills and a passion for working at the intersection of AI research and systems engineering. Avid writer, speaker, and organizer of teams.

Began career as an undergraduate robotics researcher at UC Berkeley with a number of nationally publicized demos. Continued PhD studies in Computer Vision / Machine Learning at Stanford University, while contributing to Open Source projects and consulting for various companies on 3D Perception challenges. Left academia to co-found Fyusion, Inc, a Series B-2 funded startup.

Work has been published in over a dozen conferences and journals, including ICRA, IROS, RSS, WAFR, BMVC, and IJRR; featured in The New York Times, Discovery Science Channel, NBC, and CBS SmartPlanet; parodied on Attack Of The Show! and debated on Good Morning America.

Work Experience

Fyusion, Inc. / Cofounder + SVP Engineering

February 2014 - Present, San Francisco, California

Leads Engineering and day-to-day Product efforts at Fyusion:

- Direct supervision of all platform Engineering teams and Software Architects, as well as Product, Design, and QA
- Responsible for the majority of client-side delivery and communication, shipping enterprise SDKs and mobile applications
- Executive stakeholder for all strategic decisions
- Developed flexible processes from the ground up: instituted AGILE methodologies, gitflow + code review, continuous integration and delivery

Open Perception / Consultant

November 2012 - January 2014, San Francisco, California

Served as a research consultant for a number of prominent tech companies on issues pertaining to 3D perception, with an emphasis on the Point Cloud Library. Built multiple end-to-end systems from scratch, including a 3D scanning and reconstruction system used for Industrial Robotics applications.

Education

Stanford University / PhD, Computer Science (incomplete)

September 2011 - September 2013, Palo Alto, CA

Pursued 2 years of PhD research and study in the Stanford AI Lab, before ultimately leaving academia to cofound Fyusion, Inc.

UC Berkeley / B.S., Electrical Engineering and Computer Science

August 2007 - May 2011, Berkeley, CA

Computer Science specialization, with an honors area of study in Particle Physics.
GPA: 3.934 (4.0 In Major); Graduated with High Honors

Fellowships & Awards

Stanford University

- Computer Science Department Student Service Award (October 2013)
- Hertz Foundation Graduate Fellowship (September 2011)
- NSF Graduate Research Fellowship (September 2011)
- SAP Stanford Graduate Fellowship (September 2011)

UC Berkeley

- CRA Outstanding Undergraduate Research Award Finalist (November 2010)
- Mark D. Weiser Excellence in Computing Award (April 2010)
- Jim and Donna Gray Endowment in Computer Science (November 2009)
- EECS Honors Degree Program Member (August 2009 - May 2011)

Publications

- [1] Elastic Fragments for Dense Scene Reconstruction
Qian-Yi Zhou, Stephen Miller, Vladlen Koltun
International Conference on Computer Vision (ICCV) 2013; Oral Acceptance
- [2] Unsupervised extrinsic calibration of depth sensors in dynamic scenes
Stephen Miller, Alex Teichman, Sebastian Thrun
International Conference on Intelligent Robots and Systems (IROS) 2013
- [3] Free your Camera: 3D Indoor Scene Understanding from Arbitrary Camera Motion
Axel Furlan, Stephen Miller, Domenico G. Sorrenti, Li Fei-Fei, Silvio Savarese
Proceedings of the 24th British Machine Vision Conference (BMVC) 2013
- [4] Unsupervised intrinsic calibration of depth sensors via SLAM
Alex Teichman, Stephen Miller, Sebastian Thrun
Proceedings of Robotics Science and Systems (RSS) 2013
- [5] Object Discovery in 3D Scenes via Shape Analysis
Andrej Karpathy, Stephen Miller, Li Fei-Fei
Proceedings of the International Conference on Robotics and Automation (ICRA), 2013.
- [6] Word-level Acoustic Modeling with Convolutional Vector Regression
Andrew Maas, Stephen Miller, Tyler O'Neil, Andrew Ng, Patrick Nguyen.
ICML Workshop on Representation Learning, 2012
- [7] A Textured Object Recognition Pipeline for Color and Depth Image Data
Jie Tang, Stephen Miller, Arjun Singh, Pieter Abbeel
Proceedings of ICRA 2012; Best Robotics Vision Award Finalist
- [8] A Geometric Approach to Robotic Laundry Folding
Stephen Miller, Jur van den Berg, Mario Fritz, Trevor Darrell, Ken Goldberg, Pieter Abbeel
International Journal of Robotics Research (IJRR) Vol. 31 No. 2, February 2011
- [9] Perception for the Manipulation of Socks
Ping Chuan Wang, Mario Fritz, Stephen Miller, Trevor Darrell, Pieter Abbeel
Proceedings of the International Conference on Robotic Systems (IROS), 2011

[10] Parametrized Shape Models for Clothing
Stephen Miller, Mario Fritz, Trevor Darrell, Pieter Abbeel
Proceedings of the International Conference on Robotics and Automation (ICRA), 2011

[11] Bringing Clothing into Known Configurations with Minimal Perception
Marco Cusumano-Towner, Arjun Singh, Stephen Miller, James O'Brien, Pieter Abbeel
International Conference on Robotics and Automation (ICRA), 2011

[12] Gravity-Based Robotic Cloth Folding
Jur van den Berg, Stephen Miller, Ken Goldberg, Pieter Abbeel
Proceedings of the 9th International Workshop on Algorithmic Foundations of Robotics (WAFR), 2010

[13] Superhuman Performance of Surgical Tasks by Robots using Iterative Learning from Human-Guided Demonstrations
Jur van den Berg, Stephen Miller, Daniel Duckworth, Humphrey Hu, Andrew Wan, Xiao-Yu Fu, Ken Goldberg, Pieter Abbeel
Proceedings of ICRA 2010; Best Medical Robotics Paper Award

Research Summary

Stanford University / Advisors: Dr. Sebastian Thrun, Dr. Vladlen Koltun
September 2011 - September 2013, Palo Alto, CA

Researched multiple problems related to 3D perception, with a particular focus on low-cost sensors RGBD sensors and an emphasis on building end-to-end systems. This includes:

- Automatic intrinsic and extrinsic calibration of RGBD sensors
- 3D reconstruction and meshing based on RGBD input
- Object discovery in RGBD scenes

UC Berkeley / Advisor: Dr. Pieter Abbeel, Co-advisors: Dr. Trevor Darrell and Dr. Ken Goldberg

September 2009 - August 2011, Berkeley, CA

Worked in Prof. Abbeel's Robot Learning Lab on a number of problems pertaining to Surgical and Personal robotics, taking a leading role on multiple projects and publications:

- Automated suture tying for a Da Vinci-like surgical robot by learning from demonstration
- Vision and control routines allowing the Willow Garage PR2 humanoid robot to detect and fold laundry; this resulted in a number of widely publicized demos

Technical Skills

Programming Languages

Exceedingly Proficient: C++, Objective C, Python, Bash

Fairly Proficient: Swift, Java, C, Python, MATLAB, PHP/MYSQL

Additional Technical Competencies:

Toolsets: Git / GitHub, Subversion, Jira, CMake

Operating Systems: Extremely fluent in UNIX / POSIX commands, primarily works in MacOS

Web Design: HTML, CSS